April 6, 1954 L. J. FARLEY 2,674,399

APPARATUS FOR FEEDING MATERIALS INTO CONTAINERS

Filed March 13, 1950

2 Sheets-Sheet 1

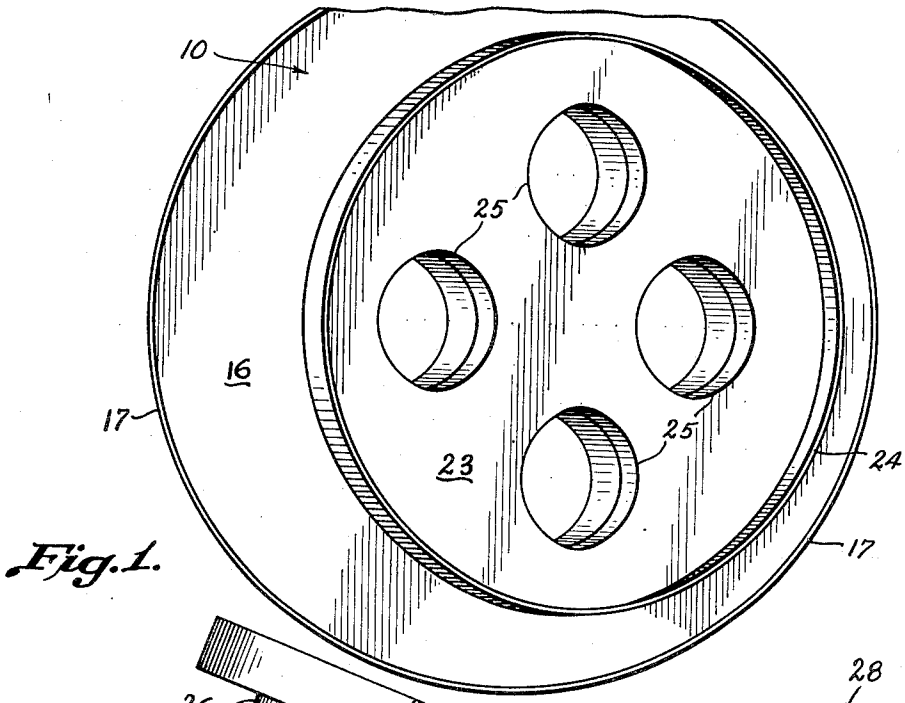


Fig. 1.

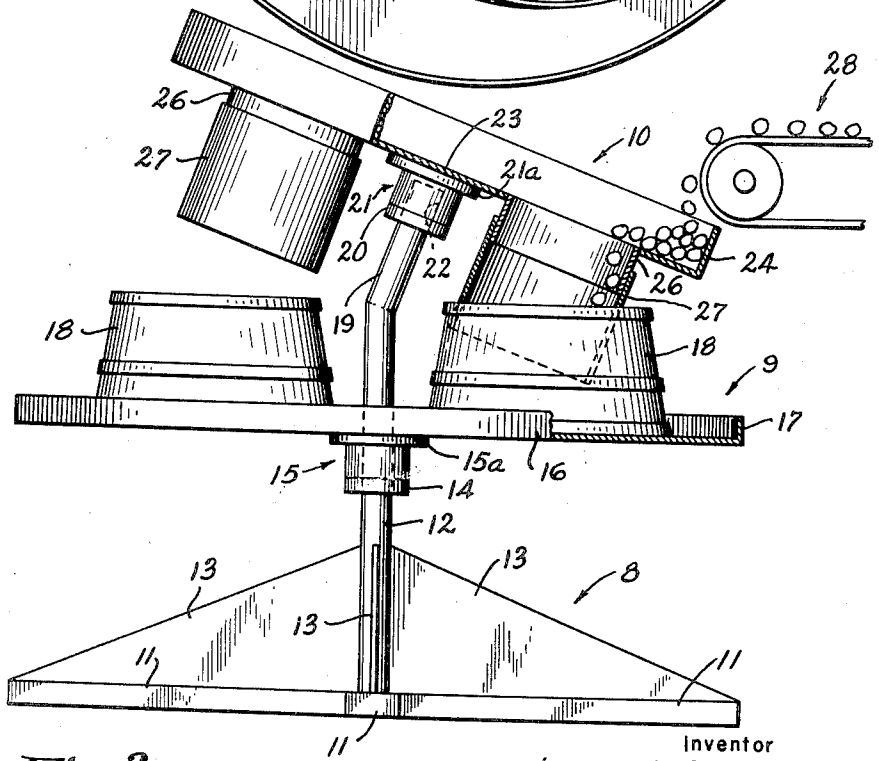


Fig. 2.

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Fig. 3.

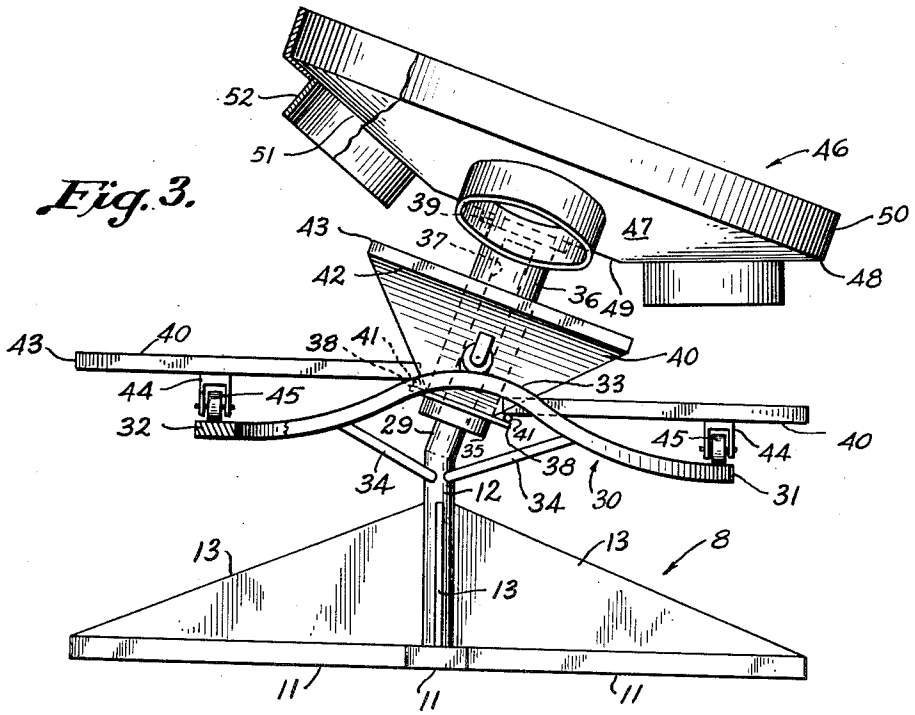
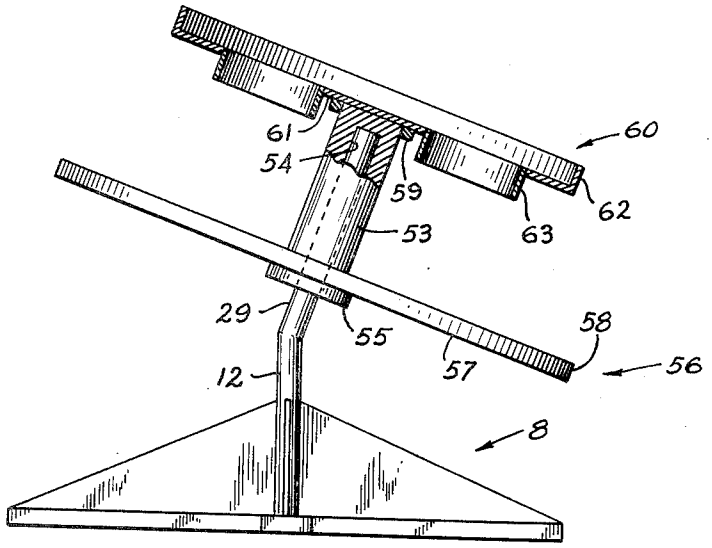


Fig. 4.



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Patented Apr. 6, 1954

2,674,399

UNITED STATES PATENT OFFICE

2,674,399

APPARATUS FOR FEEDING MATERIALS INTO CONTAINERS

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Application March 13, 1950, Serial No. 149,370

5 Claims. (Cl. 226—96)

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The present invention relates to apparatus for feeding materials into containers and more particularly to apparatus for filling baskets or sacks with fruits or vegetables.

An object of the invention is to provide a tray for receiving fruit and vegetables from a conveyor system and to discharge the fruit and vegetables through openings in the tray selectively into a waiting receptacle which is held in proximate relation to said openings.

Another object of this invention is to provide a fruit receiving tray and a receptacle tray therebelow, both of which may be rotated manually, as shown in the drawings, or if desired, by appropriate power means.

A further object of this invention is to provide an apparatus for packaging fruits and vegetables which is extremely simple in construction and operation and may be easily moved from one location to another. Also because of such simple construction the cost is held down accordingly.

Still other objects and advantages will become apparent from the following description of the present invention illustrated in the accompanying drawing, in which:

Figure 1 is a plan view of a preferred form of the invention;

Figure 2 is a side elevation of a preferred form of the invention showing various parts thereof broken away in order to clarify the showing of particular features;

Figure 3 is a side elevation of a modified form of the invention;

Figure 4 is a side elevation of a still further modified form of the invention.

Similar reference characters represent similar parts in the several figures.

As has been stated, the present invention has been designed to give simplicity in construction and ease in moving the device from place to place. The preferred form of the invention comprises basically a base portion 8, a turntable for supporting receptacles or containers 9, and a fruit or vegetable receiving tray 10, all of which are mounted on a vertically extending standard or shaft 12. The base 8 is comprised generally of a plurality of horizontal legs 11 extending outwardly from a central location, each of the legs being 90° apart in a horizontal plane. Connected to the inner ends of these legs 11 is a vertically extending standard or shaft 12. The standard 12 is held in rigid relation with respect to the horizontal legs 11 by means of a plurality of flanges 13.

It will be noted that these flanges are in the

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form of right angle triangles, the base of each triangle extending from adjacent said standard to the outer end of said legs and the altitude of said triangle adapted to extend vertically from said base along the surface of said standard. With this type of construction the maximum strength is obtained with a minimum of material, thereby tending to cut down the weight of the base beyond the required amount for supporting the receptacle support and the fruit or vegetable tray.

Spaced vertically on the standard 12 from the upper portions of the flanges 13 a collar 14 is mounted. This collar may be integral with the standard or fixed in some way relative thereto. Surrounding the standard 12 and abutting the upper portion of the collar 14 is provided a hub 15, the latter having a base flange portion 15a somewhat larger in diameter than the main portion of the hub. The hub 15 is adapted to be pivotally mounted with respect to the standard 12. The circular receptacle turntable 9 has a bottom 16 which is provided centrally thereof with an aperture to receive the standard 12. The bottom 16 is then fixedly secured to the base flange portion 15a on the hub 15 for rotational movement therewith. At the outer peripheral edge of the plate or shelf 16 an upwardly extending flange 17 is furnished for the purpose of preventing the baskets or sacks into which the vegetables are to be placed from sliding off from the plate 16. As shown in Fig. 2 conventional baskets 18 have been shown, but of course, it will be seen that other types of baskets or even sacks may be used to receive the fruit. Spaced vertically from the receptacle plate 16, and in somewhat the same horizontal plane as the upper portion of said baskets 18, the standard 12 is bent into an inclined position relative to the lower portion thereof forming a shaft portion 19. Spaced somewhat above the lower end of the inclined shaft a second collar 20 is provided in fixed relation with the shaft. A second hub 21 is adapted to be rotatably mounted on the shaft 19 and is seen to be provided with an interior bearing portion 22 to receive the shaft. Hub 21 also includes a base flange 21a which is similar to the base flange 15a of hub 15. The fruit or vegetable receiving tray 10, as seen in Fig. 1, is circular and is provided with a bottom portion 23 and flanged side walls 24. As seen in Fig. 1 the bottom 23 is provided with four openings illustrated by the numeral 25. These openings are also circular and are spaced equi-distant from the center of the tray and from the flanged wall 24. Further, the apertures are equally spaced from each other so that their cen-

ters are approximately 90° apart radially from the center of the tray. Extending downwardly from the tray bottom 23 and adapted to be received within openings 25, sleeves 26 are provided for each opening. Each of these sleeves are secured to the periphery of the openings. The length of these sleeves is somewhat dependent on the size of the baskets to be used and the fruit and vegetables to be packed.

Telescopically received by each sleeve 26 is a second sleeve 27 which is adapted to be frictionally secured thereto. The sleeve 27 is somewhat longer than sleeve 26 and is adapted to extend downwardly into the basket when the latter is being filled. The length of this sleeve 27 is also dependent on the size of the basket, its width, and various other conditions which are apparent.

The operation of this preferred form of the invention is extremely simple, and may be described somewhat as follows: As is seen in Fig. 2 an endless conveyor system 28 is provided to carry the vegetables and fruit which are to be packed from a central storage and is adapted to place the material upon the lower portion of the receiving tray 10. When sleeve 27 is in its lowermost position it extends downwardly into the basket, the extent of which depends on the size of the basket and the length of the sleeves. As the endless conveyor continues to discharge the material into the tray the material builds up in the bottom of the tray and against the flanged walls 24 until the excess flows into the basket. The receptacle plate 9 and tray 10 are adapted to be rotated simultaneously so that when the lower portion of the basket 18 is filled with the material the interior of sleeves 26 and 27 will also become filled and as the tray and plate are rotated simultaneously the sleeve 27 will gradually rise from the basket.

As the sleeve begins to rise it will gradually discharge the material which is built up within the sleeves into the basket, thereby providing a completely full basket. Of course, as the tray 10 continues to revolve and the sleeve 27 gradually becomes further displaced from the basket, the material within the tray will tend to seek a lower lever and after the basket has been rotated to a position approximately 180° from its filling position it is quickly removed and an empty basket is substituted. Then the machine is ready for another cycle. It is to be understood, of course, that each basket is directly beneath its respective sleeve 27 and it is probable that the material will be stacked up in the tray to such an extent that each of the baskets will begin to be filled shortly before the sleeve 27 reaches its lowermost position within the basket and also continues to be filled somewhat after the sleeve has passed its lowermost position. However, by the time the sleeve is rotated 90° from its lowermost position it should have discharged all of its contents leaving the basket completely full. Any of the excess material in the tray by this time will have fallen back toward the lower portion of the tray and into an adjacent opening.

With this form of the invention a person can manually operate the turntable 9 and the tray 10 so that one of the baskets can be filled while the operator is removing an already filled basket and replacing it with an empty one. Then the turntable and the tray may be rotated through 90° by the operator and another basket is filled. Of course, it is necessary to design the size of the tray and its openings in accordance with the size of the baskets to be used and the amount of material to be delivered by the conveyor 28.

A modified form of the invention is shown in Fig. 3 and is seen to comprise the same base 8 having the standard 12 extending upwardly therefrom. In this device the standard 12 is provided with an inclined portion 29 slightly above the upper portion of the flange 13. Positioned on the standard 12 and surrounding the inclined portion 29 is a circular cam track 30. As will be noted this cam track has a lowermost portion 31 and 180° therefrom has a slightly higher level illustrated by the numeral 32. Between these two levels the cam track is inclined upwardly to form a sort of arcuate surface 33. The complete cam track is mounted on the standard 12 by means of support members 34, it being understood that while only two are shown in Fig. 3, there may be provided any desired number to properly support the track. These supports extend from a point on the standard 12, slightly below the bent portion 29, outwardly and upwardly to the track 30. Spaced above the upper end of the standard 12 and surrounding shaft portion 29 is provided a hub 35 which is secured to shaft 29 in any convenient manner. A sleeve 36, provided with a central bore 37, is adapted to be slidably received on the shaft portion 29 and has at the lower end thereof a flange 38 and at the upper end thereof a flange 39. Flange 38 abuts collar 35 and is adapted to rotate relative thereto.

As will be seen in Fig. 3 a plurality of trays 40 are adapted to be pivotally mounted as at 41 to the outer periphery of the flange 38, each of the trays being spaced 90° from the other. Trays 40 are trapezoidal in shape, having an outer edge 42 somewhat greater in length than the inner edge which is pivotally connected to the flange 38. The trays are provided with flanges around the periphery thereof, as illustrated by the numeral 43. These trays are adapted to receive the various receptacles such as baskets, or the like, into which vegetables are to be packed. Intermediate the ends of each tray a downwardly extending standard 44 is provided and has journaled in the lower portion thereof a roller 45 which is adapted to follow the surface of the cam track. The axis of roller 45 is always in radial alinement with the pivotal axis of the trays on the shaft portion 29. On the upper end of the sleeve 36 and secured to the flange 39 is a material receiving tray 46. The tray has a frusto conical shaped bottom portion 49, the lowermost portion of which is adapted to rest on the flange 39 and to be fixedly secured with respect thereto. An upstanding flange or rim 50 is positioned around the outer periphery 43. Between the bottom portion 49 and the outer peripheral edge 48 the portion 47 is provided with four equally spaced openings 51. Depending downwardly from each of these openings is a sleeve 52 which is of substantially the same diameter as the openings.

It will be seen, therefore, from the above, that this modified form of the invention has four rotatable receptacle trays which are adapted to rotate with the fruit receiving tray 46. The operation of this form of the invention is as follows: A basket is placed on the tray 40 when it is at the level 32. As the fruit receiving tray 46 is rotated the basket and tray will rise up on the cam track to the level 33 and from this level 33 to the level 31 the basket will be in closely spaced relation with respect to the sleeve 32. Also the basket will remain in this close relation until the tray is rotated 90° from the level 31 and 180°

from the level 33. Therefore, as the tray 46 rotates and the tray 40 begins its descent from the track level 33 to the track level 31, the material within the tray commences to fall into the waiting basket. When the sleeve 52 and the basket reach their lowermost level the maximum amount of filling takes place. By the time the tray rotates another 90° the material ceases to fall into the basket, since it tends to seek a lower level. The basket is then ready for removal to allow another basket to be substituted. As will be seen the advantage of having the cam track elevate to the position 33 is so that the basket which is in the tray 40 may remain in close proximity to the sleeve 52 in the last half of its downward descent and the first half of its upward ascent. A telescoping sleeve such as 27 may be mounted on sleeve 52.

As the sleeve and tray reach their lowermost position and begin their ascent, a lesser amount of the material flows and by the time the tray has rotated 90° from its lowermost position complete stoppage results. While the above modification has been described with respect to the use of baskets, it is also seen that sacks or other containers may be used in lieu thereof, appropriate fastening means being provided with such use.

A further modified form of the invention, as seen in Fig. 4, also is comprised of a base portion 8, a standard extending upwardly therefrom having a lower portion 12 and an upper portion 29, the latter portion being inclined relative to the vertical portion 12. A sleeve 53 having an inner bore 54 is adapted to be rotatably received by the upper portion of the standard 29. It will be noted that a collar 55 is fixedly secured to the upper portion of the standard so as to limit the descent of the sleeve 53. Fixedly mounted to the lower end of sleeve 53 is a container support 56 having a bottom portion 57 and an outer peripheral flange 58, the bottom portion 57 being adapted to rotate with sleeve 53 and abut collar 55. On the uper end of sleeve 53 a base flange 59 is fixedly mounted. A material receiving tray 60 having a bottom portion 61 is fixedly secured to the base flange 59 at its central point for rotation with the sleeve 53 and the container support 56. It will be noted that a peripheral flange or rim 62 is provided for the material-receiving tray and acts to prevent an overflow of material.

Tray 62 is also provided with openings similar to those shown in Fig. 1 for tray 10. Similarly a downwardly extending sleeve 63 is provided for each opening and is secured to the periphery of the opening. It is not believed that it is necessary to explain the mode of operation of this form of device except to point out that the baskets or sacks which are to be used as containers are adapted to rest on the support 56 beneath one of the sleeves 63 so that when the sleeve and basket are in their lowermost position the material will flow freely from the tray into the basket. By the time the sleeve and basket have rotated 90° from their lowermost position the flow of material will cease and the basket is then ready to remove for replacement with an empty.

It will be seen from the foregoing detailed description that I have provided an extremely simple device which is compact and meets the needs of the orchard and farming trade. The apparatus may be easily moved from one location to another.

While I have shown and described a preferred

form of my invention, it will be understood that variations in details of form may be made without departure from the invention as defined in the appended claims. It is also to be understood that while the invention has been shown and described as operable by manual means, it would be well within the purview of a person skilled in the art to provide appropriate power means for driving the rotating tray and turntable to carry out the conception of the invention.

I claim:

1. An apparatus for filling containers comprising a base member having an upwardly extending standard thereon, a circular cam track mounted on said standard spaced above said base, a sleeve rotatably mounted on an upper portion of said standard, a flange secured to the lower end of said sleeve and rotatable therewith, a plurality of radially extending container supporting trays pivotally connected to said flange at their inner ends, and supported at their outer ends by said cam track, a material receiving tray mounted on the upper end of said sleeve, a plurality of openings in said material receiving trays in substantial vertical alignment with said plurality of container trays, each opening and its cooperating container tray being in substantial vertical alignment and centered in the same radial plane which extends from the axis of rotation.

2. An apparatus for filling containers comprising a base member having an upwardly extending standard thereon, the lower portion of said standard being vertical and the upper portion being inclined to the vertical, a circular cam track mounted on the lower portion of said standard spaced above said base, a sleeve rotatably mounted on an upper portion of said standard, a flange secured to the lower end of said sleeve and rotatable therewith, a plurality of radially extending container supporting trays pivotally connected to said flange at their inner ends and supported at their outer ends by said cam track, a material receiving tray mounted on the upper end of said sleeve, a plurality of openings in said material receiving tray, there being a corresponding opening for each container supporting tray, said corresponding opening and supporting tray being centered in substantially the same radial plane extending from the axis of sleeve rotation, a second mentioned sleeve received by each of said openings and secured to the periphery thereof, said second mentioned sleeve and its corresponding container supporting tray being so arranged that during a predetermined period of rotation of said first named sleeve, the second mentioned sleeve and its corresponding material receiving tray will be in a closely spaced relation for discharging material into containers positioned in their respective supporting trays.

3. An apparatus for filling containers comprising a base member having an upwardly extending standard thereon, a sleeve rotatably mounted on the upper portion of said standard, a flange on the lower end of said sleeve having a plurality of container supporting trays pivotally connected thereto at one of their ends, a cam track for supporting the other end of said container receiving trays, a material receiving tray mounted on the upper end of said sleeve for rotation therewith, the latter named tray having a plurality of openings therein substantially centered in the same vertical plane as said container supporting trays, said cam track being

so constructed and arranged that during a predetermined period of rotation of said sleeve, material is adapted to be discharged from said material receiving tray into a waiting container in position in its supporting tray.

4. An apparatus for filling containers, comprising a base member having an upwardly extending standard thereon, said standard having an upper portion which is inclined to a lower portion adjacent said base, means rotatably mounted on said standard and pivotally mounted transversely thereof and spaced above said base for supporting a container, a material-receiving tray rotatably mounted on the upper portion of said standard and spaced above said means, said tray having an opening therein, a sleeve connected to said tray and alined with said opening and extending downwardly from said tray, said sleeve and opening being so arranged as to be substantially centered in the same vertical plane as said container and in substantially vertical alinement therewith as the tray and container-supporting means are rotated in unison, and means for pivoting the first mentioned means alternately toward and away from said tray during rotation thereof to effect alternate movement of a container toward and away from said tray.

5. An apparatus for filling containers, comprising a base member having an upwardly extending standard thereon, a plurality of container-supporting trays rotatably mounted on said standard and pivotally mounted transversely thereof, a material-receiving tray rotatably mounted on said standard and spaced above said container-supporting trays, said material-receiving tray having a plurality of openings therein, each of which is substantially centered in the same vertical plane as one of said container-supporting trays, and means for pivoting said container supporting trays alternately toward and away from said material-receiving tray during rotation of said trays so as to effect alternate movement of containers toward and away from said material-receiving tray.

References Cited in the file of this patent

UNITED STATES PATENTS

Number	Name	Date
721,850	Wright	Mar. 3, 1903
1,881,106	Vaught et al.	Oct. 4, 1932
2,169,573	Voght	Aug. 15, 1939
2,241,672	Minard	May 13, 1941
2,270,709	Pittaluga	Jan. 20, 1942
2,280,826	Hothersall	Apr. 28, 1942